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(54) METHOD FOR OPERATING MULTI MEDIA MAILBOX OF MOBILE TELECOMMUNICATION TERMINAL

(57) Abstract:

PURPOSE: A method for operating a multi-media mailbox of a mobile telecommunication terminal is provided to operate a mailbox service supporting multi-media, thereby enabling users to show the originality and effectively executing self-publicity.

CONSTITUTION: A mobile telecommunication system receives a call signal calling a mobile telecommunication terminal(201). The mobile telecommunication system confirms the traffic state of the corresponding mobile telecommunication terminal receiving the call signal(202). If the terminal of a callee is not available for traffic, the mobile telecommunication system determines whether a mobile telecommunication terminal of a caller is receivable multi-media data(203). If receivable, the mobile telecommunication system transmits multi-media data set by the callee to the terminal of the caller(204). The caller receives multi-media data and transmits a multi-media message to the callee(205).

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METHOD FOR OPERATING MULTIMEDIA PRIVATE MAIL BOX OF MOBILE  
COMMUNICATION TERMINAL EQUIPMENT

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English Title : METHOD FOR OPERATING MULTIMEDIA  
PRIVATE MAIL BOX OF MOBILE  
COMMUNICATION TERMINAL EQUIPMENT

## Specification

1. Title of the invention

Method for Operating Multimedia Private Mail Box of Mobile Communication Terminal Equipment

2. Brief description of the figures

Figure 1 is an outlined block diagram showing a mobile communication system in which the method for operating a multimedia private mail box of a mobile communication terminal equipment of the present invention is adopted.

Figure 2 is a sequential diagram showing the processes for operating a multimedia private mail box in the mobile communication system in which the method for operating a multimedia private mail box of a mobile communication terminal equipment of the present invention is adopted.

Figure 3 shows an example of a screen in which a multimedia message is displayed on the other party mobile communication terminal equipment in the mobile communication system in which the method for operating a multimedia private mail box of a

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<sup>1</sup> Numbers in the margin indicate pagination in the foreign text.

mobile communication terminal equipment of the present invention is adopted.

Figure 4 shows an example of a screen in which a user prepares his multimedia message in the mobile communication system in which the method for operating a multimedia private mail box of a mobile communication terminal equipment of the present invention is adopted.

<Explanation of symbols of the main parts of the figures>

110 Transmitter mobile communication terminal equipment  
120 Mobile communication system  
121, 124\_1, 124\_2, 124\_3, ..., 124\_n Base stations  
122, 123\_1, 123\_2 Base station controllers  
125 Exchange  
126 Home Location register (HLR)  
127 Visitor location register (VLR)  
130\_1, 130\_2, 130\_3, ..., 130\_n Receiver mobile communication terminal equipments  
140 Multimedia information provider

### 3. Detailed explanation of the invention

(Purpose of the invention)

(Technical field of the invention and prior art of the field)

The present invention pertains to an application service field of a mobile communication terminal equipment. In particular, the present invention pertains to a method for operating a multimedia private mail box of a mobile communication terminal equipment that expresses the personality of a user and can effectively carry out his information activities by operating a private mail box service in which a multimedia is supported in a mobile communication terminal equipment that can transmit images, like IMT 2000.

Nowadays, mobile communication terminal equipments are occupied as necessities of life owing to their carrying simplicity and convenience, and many people use them. Since these mobile communication terminal equipments have phonebook registration, schedule management functions, etc., they are changed to means for a personal information management function beyond means for a telephone communication.

Also, the marked development of the information /3 communication field related to computers not only remarkably promotes the efficiency of businesses but largely changes our daily living patterns. For example, as a shopping pattern related to product purchases, the utilization of the product purchase using an on-line shopping mall on a computer is gradually expanded in actuality.

Then, systems and methods for receiving various information at real time by connecting with a network like Internet through a mobile communication terminal equipment are actively searched, and along with the development of mobile communication terminal equipments for transmitting images such as IMT 2000 (Internal Mobile Telecommunication for the 2000s), lots of researches on service systems and methods utilizing them are in progress.

Thus, along with the recent development of communication techniques, the next-generation mobile communication networks that can provide high-quality communication services and various additional services, that is, the next-generation mobile communication networks called IMT 2000 or FPLMTS (Future Public Land Mobile Telecommunication System) will be expected to be commercialized. These next-generation communication networks adopt a data packet transmission method to be able to transmit and receive voice, image, or data files at high speed and use a high frequency band, for example, a frequency band of 1,855-2,100 MHz or 2,110-2,200 MHz to secure a high-speed data transmission. Then, these next-generation mobile communication networks can construct the entire world by a single communication circle.

On the other hand, if an optional transmitter transmits a call signal for calling a mobile communication terminal

equipment to a mobile communication system, the mobile communication system decides whether or not the corresponding mobile communication terminal equipment, which has received the call signal, can carry out communications. At that time, if the above-mentioned mobile communication terminal equipment is in a communication enable state, the above-mentioned mobile communication system connects the optional communicator with the above-mentioned mobile communication terminal equipment.

Also, if the above-mentioned mobile communication network equipment is not in a communication enable state, for example, if the above-mentioned mobile communication terminal equipment is in a busy state or in a power-off state, the above-mentioned mobile communication system guides greetings set by the above-mentioned mobile communication terminal user to the optional transmitter. Thus, the above-mentioned optional transmitter can leave a message to the above-mentioned mobile communication terminal equipment user.

On the other hand, if communications cannot be carried out through the above-mentioned mobile communication terminal equipment, the message is guided only through a voice. Therefore, the N generation having a high expression desire wants to use greetings that can effectively introduce his characteristic using a multimedia data, however at present





there is a limitation in which such a multimedia private mailbox cannot be used.

(Technical problems to be solved by the invention)

The present invention has been created in consideration of the above-mentioned situation, and its purpose is to provide a method for operating a multimedia private mail box of a mobile communication terminal equipment that expresses the personality of a user and can effectively carry out his information activities by operating a private mail box service in which a multimedia is supported in a mobile communication terminal equipment that can transmit images, like IMT 2000.

(Constitution and operation of the invention)

 In order to achieve the above-mentioned purpose, the method for operating a multimedia private mail box of a mobile communication terminal of the present invention is characterized by including  (a) a step that receives a call signal for calling a mobile communication terminal by a mobile communication system; (b) a step that confirms the communication state of the corresponding receiver mobile communication terminal equipment, which has received the call signal, by the above-mentioned mobile communication system; (c) a step that decides whether or not the terminal equipment of a transmitter, who has called the receiver mobile communication terminal equipment at the above-

mentioned step (a), can receive a multimedia information by the above-mentioned mobile communication system, if the above-mentioned receiver mobile communication terminal equipment is not in a communication enable state; and (d) a step that transmits the multimedia information set by the user of the above-mentioned mobile communication terminal equipment to the above-mentioned transmitter terminal equipment by the above-mentioned mobile communication system, if the terminal equipment of the transmitter, which has called the above-mentioned receiver mobile communication terminal equipment, is a terminal equipment that can receive the multimedia information.

Here, the above-mentioned mobile communication system is /4 characterized by being provided with a step that transmits a voice information set by the above-mentioned receiver mobile communication terminal equipment user to the above-mentioned transmitter terminal equipment by the above-mentioned mobile communication system, if the above-mentioned transmitter terminal equipment is not a terminal equipment that can receiver the multimedia information as a result of the decision of the above-mentioned step (c).


Also, the above-mentioned mobile communication system is characterized by the fact that in confirming the communication state of the corresponding receiver mobile communication

terminal equipment, which has received the call signal, at the above-mentioned step (b), if the above-mentioned receiver mobile communication terminal is busy, it is decided that the above-mentioned receiver mobile communication terminal equipment is not in a communication enable state for the call signal received.

Also, the above-mentioned mobile communication system is characterized by the fact that in confirming the communication state of the corresponding receiver mobile communication terminal equipment, which has received the call signal, at the above-mentioned step (b), if the power of the above-mentioned receiver mobile communication terminal is turned off, it is decided that the above-mentioned receiver mobile communication terminal equipment is not in a communication enable state for the call signal received..

Also, the above-mentioned mobile communication system is characterized by the fact that in confirming the communication state of the corresponding receiver mobile communication terminal equipment, which has received the call signal, at the above-mentioned step (b), if the above-mentioned receiver mobile communication terminal cannot obtain the position information since it is positioned in a shadow area, it is decided that the above-mentioned receiver mobile communication terminal equipment

is not in a communication enable state for the call signal received.

 Also, it is characterized by the fact that a step that receives the multimedia information being transmitted from the above-mentioned receiver mobile communication terminal equipment by the above-mentioned transmitter and transmits a multimedia message to the above-mentioned receiver mobile communication terminal equipment is further provided after the above-mentioned step (d).

According to the present invention, with the operation of a private mail box service in which a multimedia is supported in a mobile communication terminal equipment that can transmit images, like IMT 2000, a user can express his personality and effectively carry out his information activities.

Next, referring to the attached figures, an application example of the present invention is explained in detail.

Figure 1 is an outlined block diagram showing a mobile communication system in which the method for operating a multimedia private mail box of a mobile communication terminal equipment of the present invention is adopted, and Figure 2 is a sequential diagram showing the processes for operating a multimedia private mail box in the mobile communication system in which the method for operating a multimedia private mail box

of a mobile communication terminal equipment of the present invention is adopted.

Referring to Figures 1 and 2, the method for operating a multimedia private mail box of a mobile communication terminal equipment of the present invention is explained. First, if an optional transmitter calls mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n), a call signal for calling the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) from a transmitter terminal equipment (110) being used by the optional transmitter is received by a mobile communication system (120) (step 201).

Here, the terminal equipment being used by the above-mentioned transmitter may be the mobile communication terminal equipment (110) or may also be a general wire telephone set (not shown in the figure). Therefore, if the transmitter terminal equipment being used by the above-mentioned optional user is a general wire telephone set, it is connected to the above-mentioned mobile communication system (120) through a public switched telephone network (PSTN) (not shown in the figure).

~~A~~ Then, the call signal for calling the receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) from the above-mentioned transmitter terminal equipment

(110) is transmitted to an exchange (125) via a base station (121) and a base station controller (122).

On the other hand, if the above-mentioned mobile communication system (120) receives the call signal from the above-mentioned transmitter mobile communication terminal (110) at the above-mentioned step 201, the above-mentioned mobile communication system (120) confirms the communication state of the corresponding receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) by which the call is received (step 202).

At that time, the exchange (125) of the above-mentioned mobile communication system (120) can obtain information on the positions of the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) and information on the communication state through the transmission and reception of a control signal with the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n).

Here, in confirming the communication state of the /5  
corresponding receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) by which the call signal has been received at the above-mentioned step 202, if the above-mentioned receiver mobile communication terminal equipments

(130\_1, 130\_2, 130\_3, ..., 130\_n) are busy, the exchange (125) of the above-mentioned mobile communication system (120) decide that the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) are not in a communication enable state for the call signal received.

Also, in confirming the communication state of the corresponding receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) by which the call signal has been received at the above-mentioned step 202, if the power of the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) is turned off, the exchange (125) of the above-mentioned mobile communication system (120) decide that the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) are not in a communication enable state for the call signal received.

Also, in confirming the communication state of the corresponding receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) by which the call signal has been received at the above-mentioned step 202, if the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) are in a shadow area, the position cannot be detected from a home location register (126)

and a visitor location register (127), in this case, the exchange (125) of the above-mentioned mobile communication system (120) also decide that the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) are not in a communication enable state for the call signal received.

Then, if the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) by which the call signal has been received are not in a communication enable state, the above-mentioned mobile communication system (120) decides whether or not the transmitter mobile communication terminal equipment (110) is a dynamic image support terminal equipment that can receive a multimedia information (step 203).

At that time, if the transmitter mobile communication terminal equipment (110) that has called the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) is the mobile communication terminal that can receive a multimedia information, the above-mentioned mobile communication system (120) transmits the multimedia information set by the user of the corresponding receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) to the transmitter mobile communication terminal equipment (110) as shown in Figure 3 (step 204). Figure 3 shows



an example of a screen in which a multimedia message is displayed on the other party mobile communication terminal equipment in the mobile communication system in which the method for operating a multimedia private mail box of a mobile communication terminal equipment of the present invention is adopted.

As shown in Figure 3, a user can transmit a multimedia message in which high personality is utilized through the setup of dynamic images and background music to the other party mobile communication terminal equipment.

Here, in transmitting a multimedia information to the above-mentioned transmitter mobile communication terminal equipment (110), the above-mentioned mobile communication system (120) obtains the multimedia information set by the user of the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) from the multimedia information provider (140) and transmits it.

On the other hand, the above-mentioned multimedia information provider (140) may be constructed in the mobile communication system (120) or may also be connected with other information providing systems such as Internet and operated as all terminal equipments (computer, Internet mobile communication

terminal equipment, Internet Settop, etc.) connectable with the Internet.

Also, the user of the receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) may connect with the above-mentioned multimedia information provider (140) through the receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) or a terminal equipment connectable with the Internet in accordance with the system design and register a multimedia file directly prepared by the user or may also select character, background, cloth, background music, etc., from a menu list being provided from the above-mentioned multimedia information provider (140) and register greetings, user introduction, etc., suitable for the user. Figure 4 shows an example of a screen in which a user prepares his multimedia message in the mobile communication system in which the method for operating a multimedia private mail box of a mobile communication terminal equipment of the present invention is adopted.

As an example, Figure 4 shows the processes for preparing/6 the character of a user. Using the character prepared in this manner, the user can transmit an interesting multimedia message to the other party mobile communication terminal equipment.

Also, when the user of the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) prepares greetings utilizing a multimedia data, his multimedia greetings can also be prepared by editing and synthesizing popular stars or movie scenes being provided from the above-mentioned multimedia information provider (140).

Through this process, the user of the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) can operate a multimedia private mail box expressed by his personality.

Then, the transmitter can receive the multimedia information being transmitted from the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) and transmit a multimedia message to the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) (step 205).

At that time, the above-mentioned transmitter can also transmit his image to the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) by using his mobile communication terminal (110). Also, a voice message can be left in the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n), as is conventional.

On the other hand, as a result of the decision of the above-mentioned step 203, if the terminal equipment being used by the above-mentioned transmitter is not a terminal that can receive a multimedia information, for example, if the terminal equipment is a general mobile communication telephone set or a wire telephone set, the voice information set by the user of the above-mentioned receiver mobile communication terminal equipments (130\_1, 130\_2, 130\_3, ..., 130\_n) is transmitted to the above-mentioned transmitter terminal equipment, and whether or not the voice message is left is confirmed.

(Effects of the invention)

As explained above, according to the method for operating a multimedia private mail box of a mobile communication terminal equipment, with the operation of a private mail box service in which a multimedia is supported in a mobile communication terminal equipment that can transmit images, like IMT 2000, a user can express his personality and effectively carry out his information activities.

#### 4. Claims

1. A method for operating a multimedia private mail box of a mobile communication terminal, characterized by including (a) a step that receives a call signal for calling a mobile

communication terminal by a mobile communication system; (b) a step that confirms the communication state of the corresponding receiver mobile communication terminal equipment, which has received the call signal, by the above-mentioned mobile communication system; (c) a step that decides whether or not the terminal equipment of a transmitter, who has called the receiver mobile communication terminal equipment at the above-mentioned step (a), can receive a multimedia information by the above-mentioned mobile communication system, if the above-mentioned receiver mobile communication terminal equipment is not in a communication enable state; and (d) a step that transmits the multimedia information set by the user of the above-mentioned mobile communication terminal equipment to the above-mentioned transmitter terminal equipment by the above-mentioned mobile communication system, if the terminal equipment of the transmitter, which has called the above-mentioned receiver mobile communication terminal equipment, is a terminal equipment that can receive the multimedia information.

2. The method for operating a multimedia private mail box of a mobile communication terminal of Claim 1, characterized /7 by the fact that the above-mentioned mobile communication system is provided with a step that transmits a voice information set by the above-mentioned receiver mobile communication terminal

equipment user to the above-mentioned transmitter terminal equipment by the above-mentioned mobile communication system, if the above-mentioned transmitter terminal equipment is not a terminal equipment that can receiver the multimedia information as a result of the decision of the above-mentioned step (c).

3. The method for operating a multimedia private mail box of a mobile communication terminal of Claim 1, characterized by the fact that in confirming the communication state of the corresponding receiver mobile communication terminal equipment which has received the call signal, at the above-mentioned step (b), if the above-mentioned receiver mobile communication terminal is busy, the above-mentioned mobile communication system decides that the above-mentioned receiver mobile communication terminal equipment is not in a communication enable state for the call signal received.

4. The method for operating a multimedia private mail box of a mobile communication terminal of Claim 1, characterized by the fact that in confirming the communication state of the corresponding receiver mobile communication terminal equipment which has received the call signal, at the above-mentioned step (b), if the power of the above-mentioned receiver mobile communication terminal is turned off, the above-mentioned mobile communication system decides that the above-mentioned receiver

mobile communication terminal equipment is not in a communication enable state for the call signal received.

5. The method for operating a multimedia private mail box of a mobile communication terminal of Claim 1, characterized by the fact that in confirming the communication state of the corresponding receiver mobile communication terminal equipment which has received the call signal, at the above-mentioned step (b), if the above-mentioned receiver mobile communication terminal cannot obtain the position information since it is positioned in a shadow area, the above-mentioned mobile communication system decides that the above-mentioned receiver mobile communication terminal equipment is not in a communication enable state for the call signal received.

6. The method for operating a multimedia private mail box of a mobile communication terminal of Claim 1, characterized by the fact that a step that receives the multimedia information being transmitted from the above-mentioned receiver mobile communication terminal equipment by the above-mentioned transmitter and transmits a multimedia message to the above-mentioned receiver mobile communication terminal equipment is further provided after the above-mentioned step (d).

Figure 1:

110 Transmitter mobile communication terminal equipment

121 Base station

122 Base station controller

123-1 Base station controller

123-2 Base station controller

124-1 Base station

124-2 Base station

124-3 Base station

124-n Base station

125 Exchange

126 Home Location register

127 Visitor location register

130\_1 Receiver mobile communication terminal equipment

130\_2 Receiver mobile communication terminal equipment

130\_3 Receiver mobile communication terminal equipment

130\_n Receiver mobile communication terminal equipment

140 Multimedia information provider

Figure 2:

A. Start

B. End



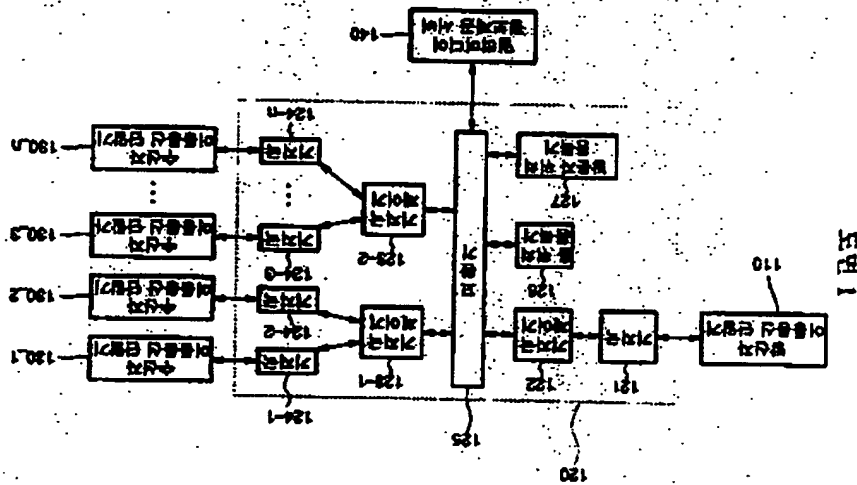
- 201 A call signal for calling a mobile communication terminal equipment is received by a mobile communication system.
- 202 The mobile communication system confirms the communication state of the corresponding mobile communication terminal equipment that has received the call signal.
- 203 If the receiver mobile communication terminal is not in a communication enable state, the mobile communication system decides whether or not the terminal equipment of the transmitter, who has called the receiver mobile communication terminal equipment, is a terminal equipment that can receive a multimedia information.
- 204 If the terminal equipment of the transmitter, who has called the receiver mobile communication terminal equipment, is a terminal equipment that can receive a multimedia information, the mobile communication system transmits the multimedia information set by the user of the receiver mobile communication terminal equipment to the transmitter terminal equipment.
- 205 The transmitter receives the multimedia information being transmitted from the receiver mobile communication terminal equipment and transmits a multimedia message to the user of the receiver mobile communication terminal equipment.

Figure 3:

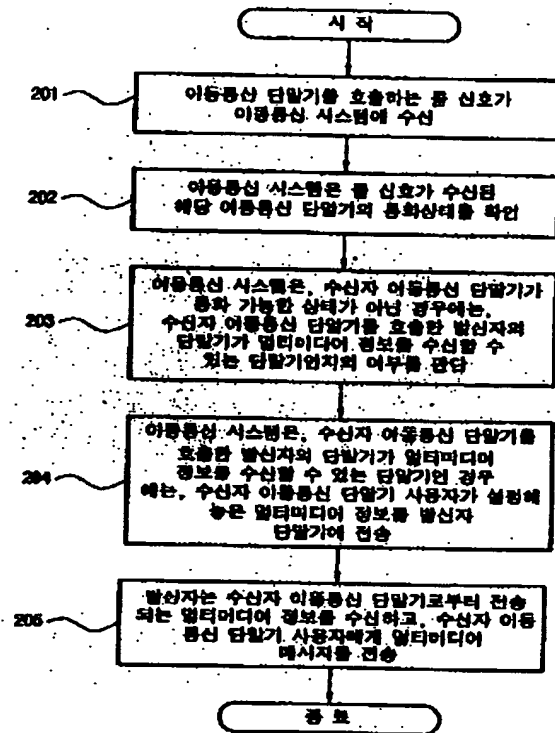
1. Multimedia private mail box
2. Hello, I cannot answer you call now. If you leave a voice or image, I will call you back right after confirming it.

Figure 4:

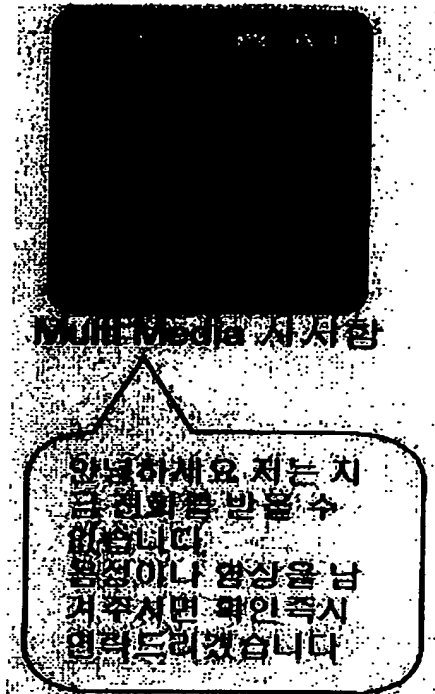
1. Preparation of my character



도면 2



도면 3



도면 4

